



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,726	04/20/2001	Paul F. Struhsaker	WEST14-00014	1219
7590 05/12/2005			EXAMINER	
DOCKET CLERK PO DRAWER 800889 DALLAS, TX 75380			VARTANIAN, HARRY	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,726

Applicant(s)

STRUHSAKER ET AL.

Examiner

Harry Vartanian

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-4 and 6-20 is/are rejected.
7) ☒ Claim(s) 5 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 12/27/2005 have been fully considered but they are not persuasive. The applicant argues the following two points as lacking from Gilhousen et al:

"Independent claims 1 and 18 each recite that first and second successive data signals from first and second subscriber stations, and subsequent data signals, if any, are alternately applied to first and second demodulators. In an exemplary embodiment of the invention, two modems are alternately employed to demodulate separate, successive uplink bursts from different subscriber stations, so that one modem is utilized to demodulate a received data burst while the second, currently unused modem is configured using profiles values associated with the next subsequent data burst expected to be received, to avoid delay in demodulation and increase overall throughput. Such a feature is not found in the cited reference."

Gilhousen et al shows discloses a basestation receiver that uses multiple modulation and demodulation elements(fig 3). He also shows in figure 3 that each demodulation element will decode a different uplink message which is later combined for decoding. In figure 1 Gilhousenn et al shows that the base station can receive signals from multiple subscribers. Moreover, Gilhousenn et al states that "demodulation elements 204A-204N are controlled by controller 200 through interconnection 212."(Column 10, lines 3-5) Gilhousenn states that his base station uses "at least one searcher element...**The searcher element identifies a set of available signals and passes the information to the controller. The controller may use the set of available signals to assign or re-assign the demodulation elements to the most advantageous signals available." (Column 10, lines 24-38) Therefor the controller uses the searcher as a form of feedback for choosing one of the demodulation elements.**

Regarding Claim 18, the limitation "successive data signals and any subsequent data signals are alternately applied to the first and second demodulators;" is shown in figure 2 where three messages are selectively demodulated by three different demodulators.

Art Unit: 2634

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilhousen et al (USPAT 5,625,876). Regarding Claim 1, Gilhousen et al meets the following limitations of the claim:

a first demodulator selectably coupled to receive at least one of the first data signals and the second data signals transmitted to the communication station by the first subscriber station and by the second subscriber station, respectively; **fig 1, items 10 and 30; fig 3**

at least a second demodulator also selectably coupled to receive at least one of the first data signals and the second data signals transmitted to the communication station by the first subscriber station and by the second subscriber station, respectively; **fig 1, items 10 and 30; fig 3**

a controller, coupled to said first demodulator and to said at least second demodulator in a feedback arrangement, said controller at least for selecting which of the first and second data signals, respectively, are applied to said first demodulator and for selecting which of the first and second data signals, respectively, are applied to said second demodulator. **(Column 7, lines 49-59);**

To further explain, in Figure 1 a communication system is shown with two subscribers sending separate radio data signals in a cellular network. In Figure 3, a basestation's is shown to have a plurality of demodulators which receive multiple signals. The selection or combining of the signals by a controller is explained in Column 7, Lines 49-59.

Regarding Claim 2, Gilhousen et al does not explicitly mention that his system be used in a fixed wireless system. However, fixed wireless is a special case of a mobile wireless system. The technology used in mobile wireless systems also will work in fixed wireless

Art Unit: 2634

environments. Therefor Gilhousen et al does meet the first limitation in claim 2. The second limitation is also met:

the data signals transmitted thereto by the second subscriber station comprise second uplink burst data signals, said first demodulator embodied at a first modem. **Claim 1**

Regarding Claim 3, Gilhousen et al meets the following limitations of the claim:

second demodulator is embodied at a second modem. **fig 3, item 204B**

Regarding Claim 4, Gilhousen et al meets the following limitations of the claim:

at least the second subscriber station comprises a plurality of subscriber stations and wherein said controller selects to which of said first demodulator and said second demodulator that the first data signals and the at least second data signals are applied according to a selected pattern. **(Column 7, lines 49-59); Look in (Column 6, Lines 44-47) for the disclosure of multiple subscribers using one basestation.**

Regarding Claim 18, the rejection of Claim 1 above also meets the limitations of the Claim 18.

Regarding Claim 19, the rejection of Claim 4 above also meets the limitations of the Claim 19.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2634

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al (USPAT 5,625,876) in view of Link (US PG PUB 2001/0018326). Gilhousen et al meets all the limitations of claim 6(See above paragraphs), except disclosing the use of sending bursts of data of selected time durations and determining times of arrival and time directions of such signals.

However, Link's fixed wireless system meets the following limitations of the claim:

the first and at least second data signals transmitted to the communication station by the first and at least second subscriber stations are transmitted in bursts of selected time durations and wherein said controller further determines times of arrival and time directions of the bursts which form the data signals. **Para 0035, 0068 Note: TDMA uses time bursts of selected lengths**

Therefor it would have been prima facie obvious for Gilhousen et al's system to use TDMA and measure time of arrival and burst direction at the time of the invention. A motivation to combine is that TDMA is well-known access system used in fixed wireless(see 802.16 standard). Regarding the motivation to use time of arrival and received direction, Link states in Para 0068 that these two parameters can be used to determine the location of a fixed wireless terminal.

3. Claims 7, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al (USPAT 5,625,876) in view of Smith (USPAT 6,272,333). Gilhousen et al meets all the limitations of claims 7 and 20(See above paragraphs), except disclosing the use of "profiles" and storing such profiles.

Art Unit: 2634

However, Smith meets the following limitations of the claim:

controller further comprises a memory portion, said controller further for maintaining profiles associated with each of the first and at least second data signals transmitted upon first and at least second channels, respectively, the profiles stored at the memory portion of said controller. (Column 4, lines 12-66)

Therefore it would have been prima facie obvious to store subscriber station profiles at a basestation. A motivation to combine is stated by Smith in the following paragraph:

"As subscriber units become increasingly user customizable with enhanced software application upgradability, it is impractical to expect that a class-of-service distinction or a subscriber unit class can define all the types of data that the applications accessible to a specific subscriber unit can support. Further, it is unlikely that all subscriber units of a specific type will have identical applications ...Thus, what is needed is a method and apparatus for controlling the delivery of data from the fixed portion of the messaging system to the subscriber unit...The controller further comprises a base station interface coupled to the processing system for controlling a base station to transmit the data. The processing system is programmed to keep in the memory a current copy of the application registry of the subscriber unit, and to check the current copy of the application registry in response to having the data to send to the subscriber unit. The processing system is further programmed to send the data only when the checking step determines that an application compatible with the data is accessible to the subscriber unit." (Column 1, Line 20 to Column 2, Line 9)

Regarding Claim 15, Gilhousen et al meets the following limitations of the claim:

the communication station to which the first and at least second data signals are transmitted by the first and at least second subscriber stations, respectively, exhibits antenna diversity provided by a first antenna transducer and at least a second antenna transducer, the first and at least second data signals transduced by the first and at least second antenna transducer, respectively, combined utilizing antenna combining parameters, and wherein the antenna combining parameters form portions of the profiles maintained by said controller and stored at the memory portion of said controller. (Column 9, lines 14-21)

4. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al (USPAT 5,625,876) in view of Smith (USPAT 6,272,333) further in view of McNicol (USPAT 5,940,454). Gilhousen et al and Smith meet all the limitations of claim 9(See above paragraphs), except storing channel related parameters for each subscriber.

However, McNicol's fixed wireless system meets the following limitation of claim 8:

wherein the profiles maintained at the memory portion of said controller comprise at least one channel-related parameter associated with the first and at least second channels upon which the first and at least second data signals are communicated, respectively. (Column 8, lines 27-39)

Therefore it would have been prima facie obvious to store subscriber channel-related parameters in a fixed wireless controller. A motivation to combine is disclosed by McNicol's

Art Unit: 2634

in Column 1, Lines 20-25 wherein he explains that channels related information, in this case sync words, are needed to:

"...adjust its phase and/or frequency response to compensate as far as possible for multipath interference or channel distortion in the wireless transmission." (Column 1, Lines 20-25)

Regarding Claim 9, it would have been obvious for each of the demodulators shown by Gilhousen et al to have separate equalizer with the support of McNicols disclosing the use of equalizers in fixed wireless modems. (Also see McNicols Column 7, line 63 to Column 8, line 6)

Regarding Claim 10, McNicol meets the following limitations of the claim:

wherein the filter weight values form portions of the profiles maintained by said controller and stored at the memory portion thereof. **fig 5, item 46**

5. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al (USPAT 5,625,876) in view of Smith (USPAT 6,272,333) further in view of Jonas (US PG PUB 20020036985). Gilhousen et al and Smith meet all the limitations of claim 11(See above paragraphs), except disclosing the storage of at least one signal-related parameter.

However, Jonas meets the following limitation:

wherein the profiles maintained at the memory portion of said controller comprise at least one signal-related parameter associated with the first and at least second data signals, respectively. **Claim 1, Para 0030, 0032**

Therefor it would have been prima facie obvious to store signal related parameters in a fixed wireless controller. A motivation to combine is suggested by Jonas wherein he states that channel parameters must be analyzed and monitored in order to:

"...make the upstream channel allocations in such a way that will utilize as much of the upstream channel capacity as possible. Further, it is desired that should communication with each node on an upstream channel is maintained as having as high of performance capabilities as possible..." Para 0017

Regarding Claim 12, Jonas meets the following limitations of the claim:

Art Unit: 2634

the first and at least second data signals are characterized by modulation indexes, and wherein values of the modulation indexes form portions of the profiles maintained by said controller and stored at the memory portion of said controller. **Para 0011**

Regarding Claim 13, Jonas meets the following limitations of the claim:

wherein the first and at least second data signals are characterized by modulation orthogonalizations and wherein values of the modulation orthogonalizations form portions of the profiles maintained by said controller and stored at the memory portion of said controller. **Para 0011, [Para 0035 Note: QPSK is an orthogonal modulation scheme]**

Regarding Claim 14, Jonas meets the following limitations of the claim:

wherein the first and at least second data signals include FEC (forward error correction), the FEC characterized by FEC parameters and wherein values of the FEC parameters form portions of the profiles maintained by said controller and stored at the memory portion of said controller. **Claim 1 para 0030**

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilhousen et al (USPAT 5,625,876) in view of Smith (USPAT 6,272,333) further in view of Greenstein et al(USPAT 6,131,016). Gilhousen et al and Smith meet all the limitations of claim 11(See above paragraphs), except disclosing the storage of band timing and carrier adjustment values.

However, Greenstein et al meets the following limitations of claims 16 and 17:

said controller and stored at the memory portion thereof comprise values of Band timing adjustments by which to adjust the first and at least second data signals. **Claim 3, 4**

profiles maintained by said controller and stored at the memory portion thereof comprise values of residual carrier adjustments by which to adjust the first and at least second data signals. **Claim 3, 4**

Therefor it would have been prima facie obvious to store carrier and phase related information in a fixed wireless controller. A motivation to combine is that it is well known in that art that phase and carrier adjustment is a typical step in the receiving process of a wireless system in order to correct any channel impairments like multipath.

Allowable Subject Matter

7. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 571.272.3048. The examiner can normally be reached on 10:00-6:30 Mondays to Fridays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571.272.3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2634

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian
Examiner
Art Unit 2634

HV



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800